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December 21, 2004

Mr. Joel Taubenblatt  
Chief, Broadband Division  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554

**Re: FiberTower Corp., Request for Waiver Permitting Two-Foot Antennas in  
the 10.7-11.7 GHz Band**

Dear Joel:

Further to our telephone conversation a few days ago, I am enclosing a letter from Tarun Gupta of FiberTower Corp. that presents more detail on the urgency of our request for a waiver to allow two-foot antennas in the 10.7-11.7 GHz band.

In a word, by providing backhaul via sites that are not accessible to four-foot dishes under the present rules, the waiver will help wireless operators to expand service rapidly to more customers, and to offer new services such as AWS.

FiberTower showed in its Petition for Waiver Pending Rulemaking (filed Oct. 22, 2004), and earlier in its Petition for Rulemaking, RM-11043 (filed May 26, 2004), that allowing two-foot dishes under the proposed constraints will not disadvantage any user of the spectrum.

Please do not hesitate to call with questions.

Respectfully submitted,

Mitchell Lazarus  
Counsel for FiberTower Corp.

cc: John Muleta  
Gerald P. Vaughan  
Peter A. Tenhula  
Catherine W. Seidel  
Scott D. Delacourt

David Furth  
Tom Stanley  
Uzoma C. Onyeije  
John Schauble  
Brian Wondrack

Linda Ray  
Michael Pollak  
Steve Buenzow  
Docket RM-11043  
(by electronic filing)

December 21, 2004

Mitchell Lazarus, Esquire  
Fletcher, Heald & Hildreth, PLC  
1300 North 17th St. 11th floor  
Arlington VA 22209  
lazarus@fhhlaw.com

Dear Mitch:

Following our recent meeting with John Schauble, Brian Wondrack, Mike Pollak, and Steve Buenzow at the FCC, I am writing with additional information on why FiberTower and its customers require a waiver to use 2-foot dishes at 10.7-11.7 GHz in the near term, without waiting the year or two you estimate for the rulemaking to run its course. As we discussed, I'd like you to forward this letter and attachments to the appropriate people at the FCC.

The need for urgency is summed up well in this email I received last week from David Leeds, FiberTower's Co-Founder & Vice President of Sales:

Tarun,

FiberTower has commitments today from Major Wireless Operators to deploy in Denver, Colorado. The communications traffic we will be handling is for 2G and 3G services, voice and data services. The customer in this market is looking for an immediate solution. We have also developed proposals and are working toward a commitment to deploy in Washington DC, and surrounding areas. This deployment will also be for 2G/3G and voice/data services. In addition, we are currently in discussions with a major wireless operator for deployment in Houston, Texas. There are several sites in this market that the customer is looking for immediate relief on. The company has already completed preliminary RF and Fixed Network designs for this market. Over the past 24 months, we have had specific discussions with multiple wireless operators to deploy in the Florida market.

David

In addition to the Denver, Washington, Houston, and Florida markets that David mentions above, FiberTower has wireless operator customers that need installations in Boston, Cleveland, Detroit, San Antonio, Austin, Waco, New York, and New Jersey.

Our customers use these installations primarily for backhauling wireless traffic to cell base stations. Operators typically have to expand their backhaul facilities as they split cell sites to accommodate growing number of subscribers, add capacity for increased usage among existing subscribers, and -- especially important over the next few years -- accommodate the greatly increased data load required for Advanced Wireless Services (3G).

Backhaul options at a given site are typically limited by terrain, surrounding construction, site type, local zoning regulations, and factors idiosyncratic to the location.

Laying fiber is prohibitively slow and expensive, especially in built-up areas where structures and roadways impede trenching. High-frequency microwave (18, 23, 24, and 38 GHz) is impractical in large parts of the country for all but short links due to rain fade. Low-frequency microwave (4 and 6 GHz) is notoriously difficult to frequency-coordinate in heavily populated areas, precisely where demand for backhaul is greatest. And even where links can be fitted in, these bands require dishes 6-10 feet in size that take up large amounts of tower space and need strong tower structures, not to mention the local zoning impacts in the communities.

Microwave in the 11 GHz band is often an ideal compromise solution, especially for the 3-8 mile links often needed in suburban areas. The band is lightly used, so coordination is usually easy; and propagation is good even in rainy areas. The major factor that keeps wireless operators from making better use of this band is the difficulty of siting and mounting the 4-foot dishes currently required under the Commission's Rules.

I have attached two letters from experienced engineering firms that explain the problem in more detail. First, Bob Paswalk of Andrew Corporation explains the problem of "twist and sway" due to dish size. In his words:

There are however many instances where due to current loading, or the structure being near its capacity, the 4 ft. antennas cannot be accommodated without upgrading the structure. As we know, that is generally a very costly endeavor, and usually impossible.

The second letter is from Edgardo Brandao of Hunt & Joiner, Inc., a company which often performs structural analyses for FiberTower. Mr. Brandao's letter specifically discusses weight and wind load, and concludes:

The majority of the towers we have analyzed for the FiberTower projects have been near their design capacity and they will not support a 4-ft. diameter dish." He adds: [I]f the FCC will allow the use of 2-ft. diameter dishes, FiberTower will have a lot more flexibility and options as to where they can install their antennas[.]

In short, a waiver authorizing two foot dishes will enable FiberTower to help wireless operators both accommodate more subscribers and serve them better in the near term.

Please let me know if you have any questions, or require specific information.

Sincerely,

Tarun Gupta  
Chief Architect  
FiberTower Corp



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November 11, 2004

Fibretower  
Attn: Tarun Gupta  
185 Berry Street  
Suite 480  
San Francisco, CA 94107

Dear Tarun,

This letter is in response to your question regarding tower loading on monopoles when a 4 ft. verses a 2 ft. microwave antenna is utilized. In many cases, a 4 ft. antenna can be used when a structure has been designed and built with that type of loading in mind. There are cases when that type of foresight and up front cost have been deployed. There are however, many instances where due to current loading, or the structure being near its capacity, the 4 ft. antennas cannot be accommodated without upgrading the structure. As we know, that is generally a very costly endeavor, and usually impossible.

If 2 ft. antennas could be used in lieu of 4 ft. antennas, the structure may in fact not need additional upgrading. Engineers calculate the square footage that an antenna/mount collects. A 2 ft. HP antenna is 3.96 sq. ft. while a 4 ft. HP antenna has 15.86 square feet. As the square footage of the antenna increases, the larger the tower member needs to be, in order to support the extra load.

Another aspect that needs consideration is that of "twist and sway". Monopoles may reach a point where both a 4 foot aperture and a 2 foot aperture would cause "twist and sway" of the structure to a point where it may need upgrading, and in many cases, may not hold the path at all. Of course a tower analysis should always be done when there are questions or concerns. During the Telecom Growth in the 1990's, many monopoles were built with future loading concerns being ignored. Today, with collocation and zoning issues, these structures are being reviewed for accessibility. In just about every case, it is beneficial to go with as small an aperture as possible.

I hope that my explanation has given you the information you were in search of. Please do not hesitate to contact me if you have any other questions, or would like to discuss this topic in further detail.

Sincerely,

Bob T. Paswalk  
Manager Construction Services  
Andrew Systems, Inc.



**HUNT & JOINER, INC.**  
CONSULTING ENGINEERS  
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December 17, 2004

Mitchell Lazarus, Esquire  
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RE: Request at the FCC for Waiver  
To Allow 2-Foot Diameter Antennas for 11 GHz.

Dear Mr. Lazarus:

Mr. Tarun Gupta of FiberTower asked us to write to you in connection with your pending request at the FCC for a waiver to allow 2-foot diameter antennas for 11 GHz.

We concur with FiberTower that the waiver is needed. Some towers will support a 4-ft. dish and others will not. It all depends on how much capacity is left on the tower. The majority of the towers we have analyzed for the FiberTower projects have been near their design capacity and they will not support a 4-ft. diameter dish.

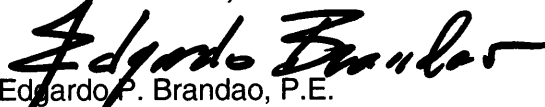
Since the area of a microwave dish varies with the square of the diameter small dishes will result in lower tower stresses. For instance, the area of a 4-ft. diameter dish is four times the area of a 2-ft. diameter dish. Wind loading -- i.e., forces on the tower due to wind pressure -- depend primarily on the dish area. Three to four 2-ft diameter dishes will have the same load effect as one 4-ft diameter dish. Weight of the antenna also varies approximately with the square of the diameter, so a 4-ft. diameter dish weighs about four times as much as a 2-ft. diameter dish (See the attached table).

In summary, if the FCC will allow the use of 2-ft. diameter dishes, FiberTower will have a lot more flexibility and options as to where they can install their antennas, so that they can meet their customers' needs more quickly.

If you have any questions, or if additional information is required, please do not hesitate to contact us.

Respectfully,

**HUNT & JOINER, INC**

  
Edgardo P. Brandao, P.E.  
Project Manager